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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicants: Usha Upadhyayula et al.

Serial No.: 09/105,844

Filed: June 26, 1998

Title: Managing Dynamic
Device Color Profiles

Customer No.: 21906

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Art Unit: 2171

Examiner: Haythim J. Alaubaidi

Docket No. ITL.0055US (P5902)

Confirmation No.: 6060

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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APPEAL BRIEF

Sir:

Applicants respectfully appeal from the final rejection mailed January 30, 2004.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee Intel Corporation, the assignee of the present application by virtue of the assignment recorded at Reel/Frame 9278/0457.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF THE CLAIMS

Claims 43-60 have been finally rejected and are the subject of this appeal.

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Date of Deposit: May 19, 2004

I hereby certify under 37 CFR 1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated above and is addressed to the Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Jennifer Juarez

IV. STATUS OF AMENDMENTS

All amendments are believed to have been entered, including the Reply to Paper No. 24, filed February 17, 2004.

V. SUMMARY OF THE INVENTION

Referring to FIG. 2, a representative computer system **200** for use with digital camera **202** is shown. Computer system **200** includes processor **204** coupled to system bus **206** through bridge circuit **208**. Specification, at page 4, line 9 through line 14.

Camera **202** may associate (e.g., store) profile information with each image at the time the image is captured. The associated profile information may include profile information in accordance with the International Color Consortium's (ICC's) profile format specification, version 3.4, August 1997. Thus, an image file generated by camera **202** may have the structure shown in FIG. 3: a first portion comprising profile information **300** and a second portion comprising image data **302**. Profile information **300**, in turn, may comprise profile header information **304**, tag information table of contents **306**, and tag table data **308** in accordance with the aforementioned ICC profile format specification. In an embodiment where camera **202** is an RGB device and the profile color space (PCS) is the CIE XYZ color space, the ICC profile format specification stipulates that tag table **308** comprise some of the tags enumerated in Table 1. Specification, at page 4, line 28 through page 5, line 12.

Table 1. Illustrative Profile Tag Table Entries

Tag Name	Description
redColorantTag	Red colorant XYZ relative tristimulus value.
greenColorantTag	Green colorant XYZ relative tristimulus value.
blueColorantTag	Blue colorant XYZ relative tristimulus value.
redTRCTag	Red channel tone reproduction curve.
greenTRCTag	Green channel tone reproduction curve.
blueTRCTag	Blue channel tone reproduction curve.
mediaWhitePointTag	Media XYZ white point.

Specification, at page 5, line 14 through line 23.

Measurement tags redColorantTag, greenColorantTag, and blueColorantTag represent the relative XYZ values of the input device's (e.g., camera 202) red, green, and blue colorants. Rendering intent information such as red, green, and blue tone reproduction curve (TRC) tags or attributes may be used by a color management module (CMM) to linearize RGB input and may be ignored if the input data is already linear. Illuminant tag information such as the mediaWhitePointTag may be used to record the XYZ (e.g., the PCS color space) values of the capture media's (e.g., digital "film") white point. Another illuminant tag that may be recorded by camera 202 and included in an image's profile information 300 is the viewingConditionsType and associated tag value. The viewingConditionsType attribute may record the illuminant condition under which an image is captured such as whether it was taken under daylight, tungsten, or fluorescent lighting conditions.

Because each image captured by camera 202 may be subject to a different illumination condition it is, in general, not possible to generate a color profile a priori that provides good color reproduction of the captured image. This is one distinguishing feature between a digital camera and other image capture devices such as digital scanners which have a substantially constant capture environment. The lack of certainty in describing an image's illuminant condition means that, without a means of generating a device profile based on the image itself, the ability of a color management system to render the image as close as possible to its original intent on any device, despite differences in imaging technologies and color capabilities between devices, is substantially limited. Specification, at page 5, line 24 through page 6, line 20.

One method to dynamically generate a device profile is illustrated in FIG. 4. First, camera 202 captures an image in a file, including therein profile data in accordance with FIG. 3 and Table 1 (step 400). At some later time, the image file may be transferred to computer system 200 (step 402). Computer system 200 may then use the image file's profile information 300 portion to generate a profile file in accordance with the ICC profile specification (step 404). The dynamically generated profile is assigned a unique filename, and this filename is passed to the CMM (step 406). Notification, or identification of the dynamically generated profile's filename to the CMM may be accomplished in a number of ways such as through application programming interface (API) calls. Having a profile that accurately reflects the image's taking/capture conditions, the CMM can faithfully process the image in accordance with user

instructions and the generated device profile (step 408). In another embodiment, referred to herein as the "live" mode of operation, camera 202 is coupled to computer system 200 during image capture, periodically transferring captured images in an automated manner. Specification, at page 6, line 21 through page 7, line 4.

Referring to FIG. 5, computer system 200 receives an image file and designates it as the "current" image (step 500). Next, the current image's profile data 300 (see FIG. 3) is compared to that associated with previously transferred profile image data (step 502). In particular, those values associated with profile tags that are subject to change based on changes in capture environment (e.g., redColorantTag, greenColorantTag, blueColorantTag, mediaWhitePointTag, and viewingConditionsTag data values) may be compared to previously transferred tag table data that has been used to create prior profiles (see discussion below and Table 1). These prior profiles may have been created in accordance with FIG. 5. For example, if no prior profiles exist, step 502 may perform no operation and the 'no' prong of step 504 is traversed. Specification, at page 7, line 16 through line 16.

If there is no match (the 'no' prong of step 504), a new profile is generated as described above and assigned a unique filename (step 506). The newly created profile may be indexed in a manner that allows its use with another image (step 508), and the CMM is notified of the new profile's filename via an appropriate applications programming interface (API) call (step 510). Specification, at page 7, line 27 through page 8, line 11.

If there is a match between the current image's profile data and profile data associated with a previous image (the 'yes' prong of step 504), the filename associated with the matching profile's data is determined (step 512) and provided to the CMM through an appropriate API call (step 510). If the live mode session is complete (the 'yes' prong of step 514), processing is terminated (step 516). If the live mode session is not complete (the 'no' prong of step 514), processing continues at step 500. Specification, at page 8, line 12 through line 18.

In another embodiment, the ability to distinguish between live mode and non-live mode operations may be provided in a single application (comprising one or more computer programs) as shown in FIGS. 6A and 6B. First, an image may be generated by a digital camera or other suitable device (step 600) and transferred to, and received by, an application program executing on a computer system (step 602). If the imaging device coupled to the computer system is not

operating in the live mode (the 'no' prong of step 604), a new profile may be generated (step 606, see also FIG. 5 and associated description). The CMM may then be notified of the image's profile (step 608) which is then processed (step 610). When not operating in the live mode (the 'no' prong of step 612), the just created profile is deleted (step 614) and processing terminates (step 616). Specification, at page 8, line 19 through line 29.

If the imaging device is operating in the live mode (the 'yes' prong of step 604), the received image's profile information is compared with existing (i.e., previously generated and stored) profile data that is subject to change based on the image's capture environment such as changes in illuminant tag values such as mediaWhitePointTag and viewingConditionsTag values, or measurement tag values such as redColorantTag, greenColorantTag, and blueColorantTag values (step 618). If there is no match (the 'no' prong of step 620), a new profile is generated, assigned a unique filename, and indexed as described above and shown in FIG. 5 (steps 622 and 624). After the CMM is notified of the image through appropriate API calls (step 608), it processes the image (step 610). A check may then be made to determine if the live mode session is complete (via the 'yes' prong of step 612). If the live mode is complete (the 'yes' prong of step 626), previously created profiles are deleted (step 614) and processing terminates (step 616). If the live mode is not complete (the 'no' prong of step 626), processing continues at step 602. Specification, at page 9, line 1 through line 15.

If there is a match between the current image's profile information and previous profile data (the 'yes' prong of step 620), that profile associated with the matching profile data is determined (step 628) and processing continues at step 608. Specification, at page 9, line 16 through line 19.

VI. ISSUES

A. Are Claims 43-60 Patentable Under 35 U.S.C. §103(a) Over Inoue In View of Murashita and In Further View of Ishii?

VII. GROUPING OF THE CLAIMS

For purposes of this appeal, claims 43-60 stand or fall together.

VIII. ARGUMENT

A. Claims 43-60 Are Patentable Under 35 U.S.C. §103(a) Over Inoue In View of Murashita and In Further View of Ishii

Claims 43-60 stand rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,273,535 (Inoue), in view of U.S. Patent No. 6,504,950 (Murashita) and further in view of U.S. Patent No. 6,477,318 (Ishii).

Applicants respectfully submit that this rejection is improper, at least for the reason that Murashita is not prior art to the present application. In this regard, Murashita was filed on March 4, 1999, while the present application was filed on June 26, 1998. Accordingly, Murashita cannot be prior art under 35 U.S.C. §§102(a) or (b). Nor does Murashita qualify as prior art under 35 U.S.C. §102(e), as Murashita merely claims priority to a Japanese patent application, not a PCT application. This foreign application filing date cannot be used as a §102(e) date for prior art purposes. 35 U.S.C. §102(e). Thus, the §103(a) rejection cannot stand.

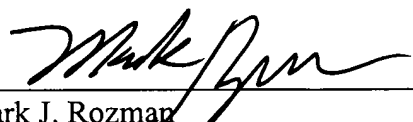
Thus claims 43-60 are patentable, and the rejection should be reversed.

IX. CONCLUSION

Applicants respectfully request that the final rejection be reversed and that the claims subject to Appeal be allowed to issue.

Respectfully submitted,

Date: May 19, 2004



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21906

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APPENDIX OF CLAIMS

The claims on appeal are:

43. A method comprising:
capturing an image in a digital imaging device to form a graphical object;
developing a device profile based at least in part on the conditions of image capture;
associating said graphical object containing image data with said device profile;
and
transferring said graphical object and associated device profile from said imaging device to dynamically generate a profile.
44. The method of claim 43 wherein dynamically generating a profile comprises:
storing a portion of the associated profile information in a profile file;
associating a filename with the profile; and
communicating the filename to the color management system.
45. The method of claim 44 wherein storing a portion of the associated profile information comprises storing a value representative of a color relation between an input color space and a profile color space.
46. The method of claim 45 wherein the stored value comprises an illuminant tag value.
47. The method of claim 46 wherein the illuminant tag value comprises a mediaWhitePointTag value.
48. The method of claim 44 further comprising storing a redColorantTag value and a greenColorantTag value and a blueColorantTag value.
49. The method of claim 44 including associating said graphical object containing image data with said device profile at the time of image capture.

50. An article comprising a medium storing instructions that, if executed, enable a processor-based digital imaging device to:

capture an image to form a graphical object;

develop a device profile based at least in part on the conditions of image capture;

associate said graphical object containing said image data with said device profile; and

transfer said graphical object and associated device profile from said digital imaging device to dynamically generate a profile.

51. The article of claim 50 further storing instructions to:

store a portion of the associated profile information in a profile file;

associate a filename with the profile; and

communicate the filename to the color management system.

52. The article of claim 51 further storing instructions to store a value representative of a color relation between an input color space and a profile color space.

53. The article of claim 52 further storing instructions to store an illuminant tag value.

54. The article of claim 53 further storing instructions to store an illuminant tag value in the form of a mediaWhitePointTag value.

55. The article of claim 50 further storing instructions to store a redColorantTag value and a greenColorantTag value and a blueColorantTag value.

56. The article of claim 50 further storing instructions to associate said graphical object containing image data with said device profile at the time of image capture.

57. A system comprising:

a processor; and

a storage coupled to said processor, said storage storing instructions that, if executed, enable the processor to enable an imaging device to capture an image to form a graphical object to develop a device profile based at least in part on the conditions of image

capture, associate said graphical object containing image data with said device profile, and transfer the graphical object and associated device profile from said imaging device to said processor to dynamically generate a profile.

58. The system of claim 57 including a digital imaging device.

59. The system of claim 57 wherein said storage stores instructions that, if executed, enable said digital imaging device to store a portion of the associated file in a profile file, associate a file name with the profile, and communicate the file name to a color management system associated with said system.

60. The system of claim 59 wherein said storage stores instructions that, if executed, enable the digital imaging device to store a value representative of a color relation between an input color space and a profile color space.

TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.
ITL.0055US

In Re Application of Usha Upadhyayula et al.

Serial No.
09/105,844Filing Date
June 26, 1998Examiner
Haythim J. AlaubaidiGroup Art Unit
2171

Invention: Managing Dynamic Device Color Profiles

TO THE COMMISSIONER FOR PATENTS:Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on
March 22, 2004

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The fee for filing this Appeal Brief is: \$330.00

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- ☒ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 20-1504


Signature

Dated: May 19, 2004

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